Changes made to this document during Sprint 2 include strikethroughs in red text and additions in green text to the old materials, and new writeups in the Sprint 2 section at the bottom.

GrinDorms Milestone 1

Product Description With User Roles

GrinDorms will be a web based platform in which Grinnell College students can explore information about their potential rooming options. The site will host a full database of all rooms on campus complete with baseline information about their location on campus, dimensions, and (ideally) empty pictures of the rooms. Users will be limited to students with a Grinnell College email address, and once this is verified, they will be allowed to access the site. To access the database of information and explore rooming options, users will be required to post their own reviews of their rooms on the site, which will incentivize the crowdsourcing aspect that is necessary for our product. When users are browsing the website, they will be able to sort and filter dorm locations on campus first by cluster, then by building, then by floor. A user can then access specific dorm room information by selecting from the available options.

Our product ideas rely on existing products like Zillow [1] and Rate My Dorm [2]. The former allows users to browse available real estate properties much like our product will allow users to browse available dorms. The latter allows users to post information about their dorm halls for anyone to see. Our project ties these two products together to make a site that is specifically tailored and limited to use by Grinnell College students. There is a need for this type of information for current students, and we will leverage this need to allow students to make more informed choices about their dorm rooms.

We anticipate the following user roles for GrinDorms:

User Roles
Administrator: A user who maintains the site and the database
Posters/Reviewers: A user who has submitted information/images of their own dorm room and has access to browse other rooms as well.
Browsers: A user who wants to explore information on the site.

User Personas and User Stories (Functional Requirements)

New Grinnell student*: New to Grinnell, wants to understand the building they have been placed in. Could either be a first year or a transfer student. Limited understanding of the campus community.*

- As a first year student, I need to be able to understand the facilities of the residence hall I was placed in so I know what to expect.
- As a first year student, I need to be able to know the size/shape of the room I was placed in so I know what/how much stuff to bring to school.
- *As a transfer student, I need to understand the differences between my previous dorms and Grinnell College dorms so I know what to expect at my new school.*

- *As a transfer student, I need to be able to understand the dorm culture at Grinnell to prepare me for my new living situation.*
- *As a new Grinnell student, I need to be able to see all of the information without being able to contribute to the site.*

Single Dorm seeker*: Returning Grinnell student who wishes to research potential single room locations because they do not do well with sharing their living space. They still may wish to be near their friends, however.*

- As a single dorm seeker, I need to be able to see all possible single dorm locations so I can come up with a list of possible room draw options that suit my preferences.
- As a single dorm seeker, I need to be able to understand other single dorm resident's experiences in their single rooms so that I can judge if I want to pursue living on my own.
- As a single dorm seeker, I need to be able to see if my rooming options are close to group living options that my friends want to live in so I can find a place that keeps me nearby.
- As a single dorm seeker, I need to understand the culture of the dorms I am looking at so I can find a place that keeps me involved and I don't become a recluse.

Post-room draw user *(want info about dorm building in general):*

- As someone who has already been assigned a room, I would like more information on the dorm building such as the number of washing machines, what the lounge/kitchens are like, distance from locations like the gym, etc)
- As a post-room draw user, I need to be guaranteed to see other people's dorms so that I know there is information that exists.
- As a post room draw user, I need to feel assured that the information posted on the site is accurate and that it comes from real residents.
- As a post room draw user, I need to be able to mark my room as taken so no one else wastes their time looking at it.

Group dorm seeker*: A returning student who has at least one other roommate they intend to live with, but is unsure of whether they want to pursue a special room draw or a standard room.*

- As a group dorm seeker, I need to be able to see all special room draw options that are available for my roommate group.
- As a dorm seeker, I need to be able to see the previous sizes of any rooms on campus, so I can tell if a previous double has been converted to a triple, or vice versa, and know if my roommate group would be getting a good or bad deal.
- As a group dorm seeker, I need to be able to understand the layouts of the rooms so my roommates and I know which rooms/beds we want to take.
- As a group dorm seeker, I need to be able to see whether rooms have dedicated common areas or if one of me or my roommates will have to live in a common room.
- As a group dorm seeker, I need to be able to see the other group dorms around my potential options so that my group can try to room near friends.
- As a group dorm seeker, I need to be able to find rooms that are designed exactly for the size of my roommate group.

Accessibility checker*: A student with a physical or mental disability. This could be someone who needs physical assistance to move, or requires low stimulation environments to manage their day to day life, or who needs to be close to particular parts of campus to ease their symptoms*

- As someone with physical limitations, I would like to be able to determine information regarding room accessibility (such as elevator present in building, air conditioning, room distance from bathroom, no lofted bed, etc) to satisfy my abilities.
- As someone with an attention deficit disorder, I would also like to be able to manage the appearance of the website on my screen so that I can more easily access the images/text displayed without being overwhelmed or distracted.
- As someone with a learning disability, I need to be able to see the proximity of room options to the disability office on campus.
- As someone with anxiety, I need to understand the community of my dorm options so that I can put myself in an environment I can succeed in.
- As someone with sleep issues, I need to know the orientation and placement of dorm rooms so that I can know how bright the rooms are at night and in the morning.

Room Poster: *A returning or graduating Grinnell student who wishes to share information about their dorms and living experiences for other people to see.*

- As someone posting a room review, I would like to remain anonymous, and have the ability to remove any images I may have shared.
- As someone posting a room review, I need to be able to share any potential information I have that there are not explicit fields for so that I can accurately describe my experience.
- As a room poster, I need to be able to show what my room looked like when I lived in it.
- As a room poster, I need to be able to post my information easily without the experience being a hassle so that I actually go through with posting it.

Administrator: *A user of the service that maintains the database and user interface, and monitors the site for any misuse.*

- *As an administrator, I need to be able to access and control all supplied information so I can service the site.*
- *As an administrator, I need to be able to delete any posted information that goes against our community guidelines*
- *As an administrator, I need to ensure that all posted information omits personally identifiable information so that I can keep the site private.*
- *As an administrator, I need to be able to see if people report problems about the site so I can fix them.*

Non-functional Requirements

Verify Grinnell Emai*l*: Users must verify that they are currently enrolled at Grinnell College

Privacy Features / Ability to Remove Information: Users will have the ability to remove pictures and reviews (*either automated or via administration)

Anonymity: Users privacy will be ensured with their personal information (e.g., name) be hidden from other users.

External Requirements

Our product will work as specified, and available only to Grinnell College students via a login page. This is a web-based product with a URL that will be publicly available.

Scope and Feature List

MAJOR FEATURES:

1. Log-in with your student email, ~~and provide your class year, current room, etc~~. before viewing any dorm information.
2. A feature to upload information about your own dorm room (photos, star rating, text review, etc.)
3. Ability to view a catalogue of all dorm rooms on campus (photos, etc.). These will be static pages that are linked from the home page and from the details of the rooms.
4. Ability to remove information at your own discretion (privacy)
5. Ability to view/edit/delete your past reviews
6. Add custom sorting and filtering functionality for users to query the room database instead of the flow where users need to click on building, floor, and room.

STRETCH GOALS:

1. ~~Verify each user has actually lived in the room they submitted~~
2. Force users to submit a review before they view other information on the site
3. ~~Distinguish first year users and allow them to access the site without contributing to reviews~~
4. Access Dorm-Hall specific information (washers,dryers,bathrooms,accessibility)
5. Filtering rooms based on certain requirements (elevator, ac, substance-free, dorm cluster, floor level)
6. Someone on campus over the summer posting pictures of all empty dorms

OUT OF SCOPE:

1. Do a 3D tour of any room you want (Like Google Earth)
2. Include Off-Campus (houses, apartments, landlords, rent, etc.)
3. Videos of rooms
4. Send messages to other users asking for a tour
5. Integration with the current Starrez housing system to track which
6. rooms are taken
7. Ability to view how many people are interested in a room to determine potential competition
8. Verify each user has actually lived in the room they submitted

9. Have users provide information about their class year and rooms lived in.
10. Distinguish first year users and allow them to access the site without contributing to reviews

Citations

[1] Zillow: Real Estate, Apartments, Mortgages & Home Values. Retrieved from https://www.zillow.com/

[2] RateMyDorm: Your Resource for College Dorm Reviews. Retrieved from https://www.ratemydorm.com/

Sprint 1: Use Cases

Someone searching for a specific room

Actor: A Grinnell student.
Goal: Get detailed information about a specific room, either because they have already been assigned that room, or they are evaluating room options for room selection.

- **Connected User Stories:**
  - *Group dorm seeker*
  - *Post-room draw user*
  - *Single Dorm seeker*
  - *New Grinnell Student*

Trigger: The user selects the “review rooms” website view, versus the “post a review” option.
Pre conditions: The user has a valid Grinnell email and other users have posted a review about the room the user wants to view.
Post condition: The user viewed information about their desired room.
Flow: Navigate to website and log in with email. Met with a screen that has two buttons: “review a room” and “view dorms”. User clicks the “view dorms” option and is prompted to choose between North, South, and East campus. They select one of the options, are met with a list of all the buildings in that cluster, they select the dorm building, select the floor number, and finally select the room number from a list of all the rooms in that dorm that have data.
Alternative flow (recoverable): The room has not yet been reviewed: The user logs in, selects view dorms, the dorm building, and the floor number, and is guided to a page that says no room review has been posted yet. Maybe there is an option for the user to view the floor plans for the building.
Alternative flow (non-recoverable): If the user does not provide valid login credentials, they will not be able to pass the login page to complete the normal flow for this use case.

Someone searching for info regarding dorms in East campus

Actor: A Grinnell student interested in exploring the room options in East campus.
Goal: The student wants to search for details about East Campus dorms (for example which buildings have washing machines) as well as specific room options in East campus.

- **Connected User Stories:**

- *New Grinnell Student*
- *Single Dorm seeker*
- *Post-room draw user*
- *Accessibility Checker*

Trigger: The user clicks on a button to guide them to information regarding East campus.
Preconditions:

1. The user has a verified Grinnell email and has logged into the GrinDorms platform.
2. Information about East Campus exists in the database.

Postconditions:

1. The user is presented with filtered search results about East Campus dorms.
2. The user can then select a dorm which

Flow: Navigate to website, log in using a Grinnell email. Met with “post a review” and “view dorms” buttons. Clicks “view dorms”, clicks “East campus” (maybe from a dropdown menu). From there, click buttons to navigate to specific buildings in the East, select floor number, and select a room on the floor.
Alternative flow (recoverable): If no reviews exist for East Campus dorms, the system would notify the user with a message such as “No reviews exist for East Campus rooms.” The user is then prompted with an option to post a dorm review before exciting or returning to the home page, however we choose to handle this.
Alternative flow (non-recoverable): If the user is not logged in, they are redirected to the login page with an error message stating something like, “You must log in with a verified Grinnell email to access this page.” The user must then log in before continuing.

Someone posting a room review
Actor: A returning Grinnell college student
Goal: The student’s goal is to post a review on a dorm room they have lived in.

- **Connected User Stories:**
  - *Room Poster*

Trigger: The trigger would be selecting the “REVIEW A ROOM” button, as opposed to a browse rooms button.
Preconditions: The user has created and verified an account.
Postconditions: The user has left the review, saved it and it was uploaded it to the website.
Flow: First you click Login, and if you are not yet registered then you register. Then you select Review a room, as opposed to browse rooms, then you click your cluster (EAST/NORTH/SOUTH), then your dorm hall, then your specific floor, then your specific room. Once you click your room, then there will be a text box and photo drop to review your room.
Alternative flow: If a first time user, to access the room browse feature you will follow the flow process in order to gain access to the room browsing feature. If they want to list an additional review from a previous year, then they follow the standard flow.
Alternative flow (recoverable): If required fields are missing, the system could prompt, “Please complete all required fields before submitting.” The user is redirected to the review page with their entered information intact to make corrections.
Alternative flow (non-recoverable): If the system encounters an unexpected error (e.g., database failure, server crash, loss of internet connection) while processing the review, the

submission fails, and the user receives an error message, "An error occurred while submitting your review. Please try again later." The review is not saved, and the user must restart the process once the issue is resolved.

An administrator removing an inappropriate review

Actor: One of the Authors of GrinDorms
Goal: An administrator wants to remove a review that contains inappropriate information. Only an administrator can actually remove the information, but a user could flag information for review. This is connected to the second user story in the *admin user* persona
Trigger: A user flags information for review or an administrator notices inappropriate information on a new review of a dorm.
Preconditions: A review must have been posted, and admin accounts must be able to access the information in the database.
Postconditions: The inappropriate information was reviewed and deleted, and the user who posted the information was notified of the deletion and a warning is issued to their account.
Flow: The admin clicks “Admin login” on the main login page and does not enter their Grinnell College email. This links to the admin site provided by Django and the admin user then accesses the database by logging in. This is a standard element of Django’s interface, there are admin tools integrated into the project. Once in the admin site, the admin finds the review in the database and uses the provided tools to delete the record. We are not building or designing this portion of the project.
Alternative flow (recoverable): An alternative flow would be a case when the admin cannot remember the admin password they created at the start of the project. To fix this, they would follow the steps on the Django admin page to recover their account login. This page is not created by us and is provided by Django’s software. The admin user would click the “admin login” button on the main login page and would be redirected to Django’s admin API.
Alternative flow (non-recoverable): If the admin’s account is deleted, disabled, or they lose admin access due to a system error, they cannot remove the inappropriate review. The system denies access and could potentially display a message saying, “Admin privileges required.” The admin would then need to contact the rest of the team to restore access, and the issue with that particular review remains unresolved.

Someone wanting information on a specific dorm building

Actor: Any student with a valid Grinnell email
Goal: To view information about a specific dorm building as a whole.

- **Connected User Stories:**
  - *Accessibility Checker*
  - *Post-room draw user*
  - *New Student*
  - *New Grinnell Student*
  - *Single Dorm seeker*

Trigger: A user clicks on a specific dorm hall.
Preconditions: The user has created and verified an account.
Postconditions: The user viewed information about the dorm hall.

Flow: The user logs in, navigates to the room browser, will see list of buildings, grouped by campus cluster. The user clicks on a building. The user will see a set of rooms/room numbers, and off to the side, see information like number of washers/dryers, lounges, kitchens, etc.
Alternative flow (recoverable): If no information exists for the selected dorm, the system could display “No reviews available for this building yet” to the user. The user can return to the dorm list or browse other buildings.
Alternative flow (non-recoverable): If the user tries to access dorm information without logging in, the system blocks access and would display something like, “You must log in with a verified Grinnell email to view this information.” The user is redirected to the login, and access is denied until they log in.

Someone logging in to the website
Actor: A student logging in to the website for the first time. Every user exploring the website must go through this process once before accomplishing their other goals.
Goal: Create and activate an account.

- **Connected User Stories:**
  - *Accessibility Checker*
  - *Post-room draw user*
  - *New Grinnell Student*
  - *Single Dorm seeker*

Trigger: A user navigates to the GrinDorms website.
Preconditions: The user is a Grinnell student with a valid email.
Postconditions: The user will be able to get past the log in page, onto the website.
Flow: Click log-in, enter a Grinnell email, look at a code sent in an email to their outlook, and navigate back to the website to enter the code.
Alternative Flow (recoverable): If the email is not a valid Grinnell email, the user can continue to enter emails until they succeed in logging in.
Alternative Flow (non-recoverable): If the user’s Grinnell email has issues (for example, they can’t see their outlook messages), then the user will not be able to confirm the email and log in to the website.

Added after tests:

Someone searching for the best room
Actor: A student looking to find the best room possible. They do not care what building or floor it is on.
Goal: Create and activate an account.

- **Connected User Stories:**
  - *Single Dorm seeker*

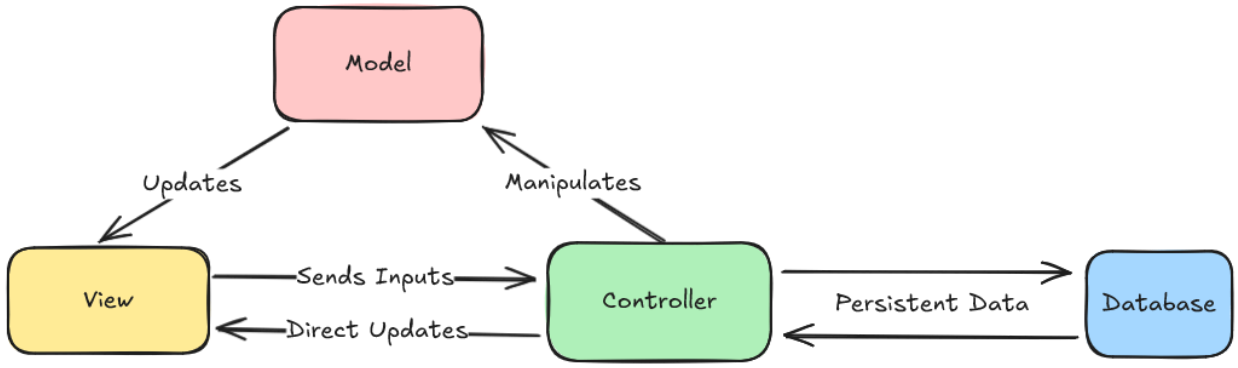
Trigger: A user has navigated to the GrinDorms website and has logged in and selected browse dorms.
Preconditions: The user is a Grinnell student who was able to get past the log in page, onto the website.
Postconditions: The user found the best room for them.

Flow: The student would filter rooms based on their star ratings, instead of navigating to the different dorms (stretch goal).
Alternative Flow (recoverable): If a lot of rooms are not reviewed the user could navigate to view the floor plans instead.
Alternative Flow (non-recoverable): If the user's Grinnell email has issues (for example, they can't see their outlook messages), then the user will not be able to confirm the email and log in to the website.

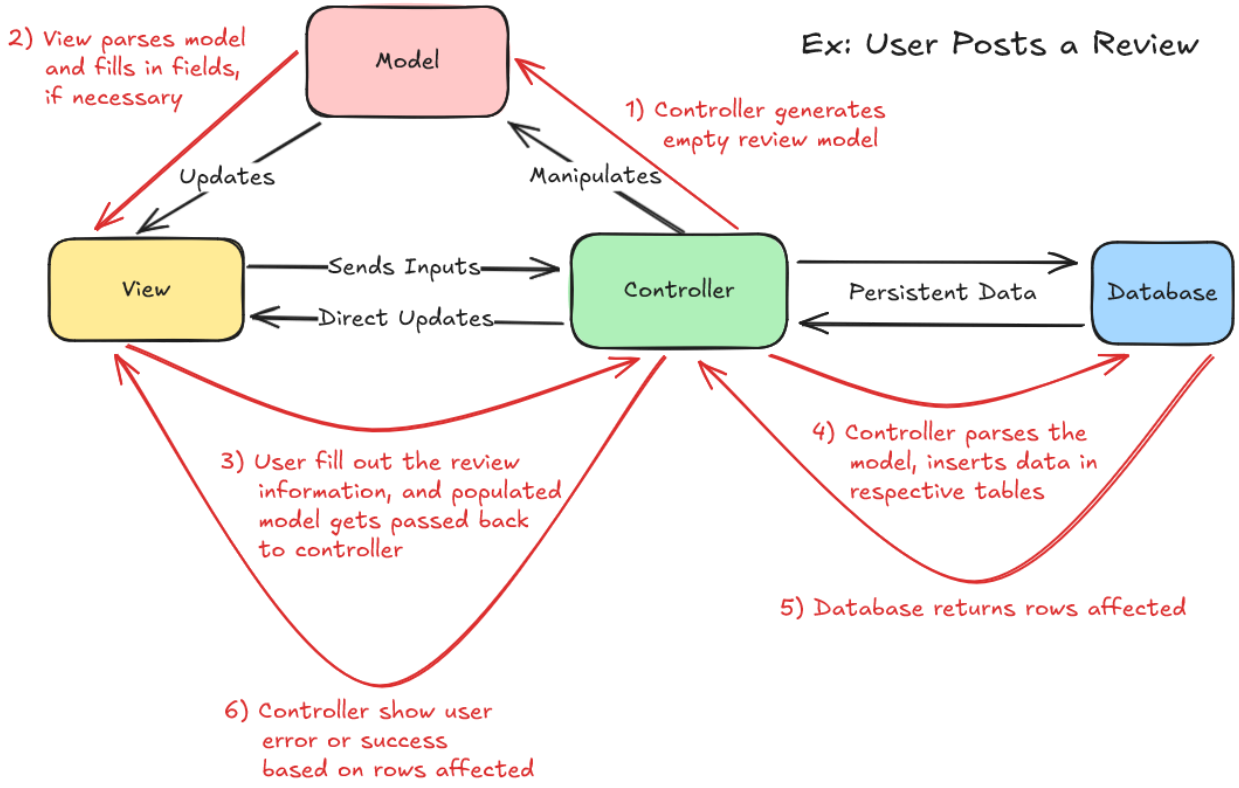
Sprint 2

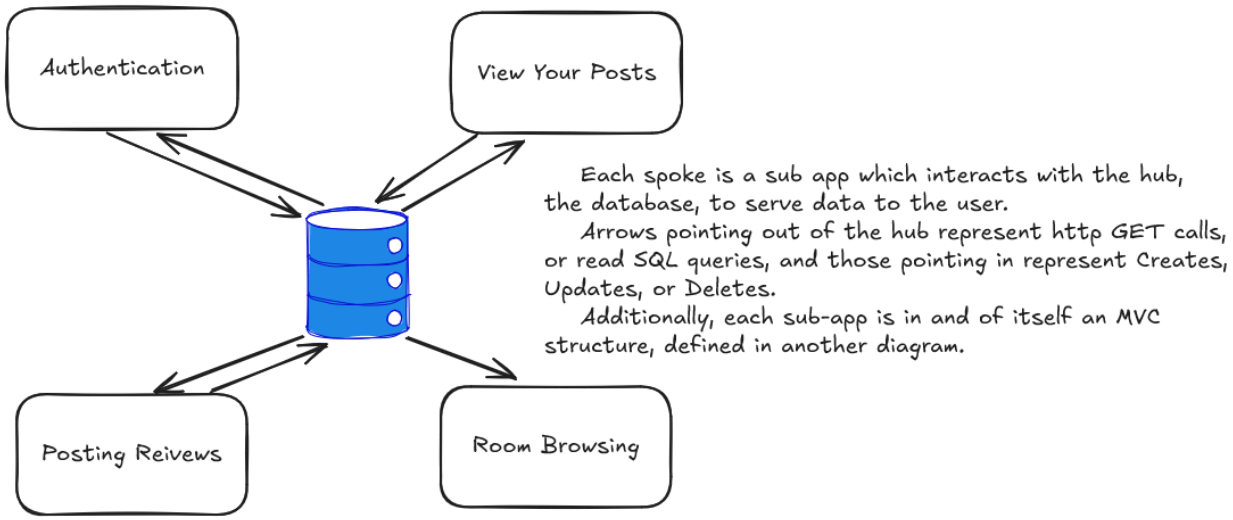
Software Architecture

Our major software components of our project are the Model, View, Controller, and Database because this is the architecture of Django apps. The view is the skeleton of what the user sees, the model is an object that is sent over the network to message to the backend or move persistent data into the app. The controller handles passing data to persistent storage and modifying the model before sending it to the view. Lastly the database stores persistent data. The database is the major data storage component and it exclusively interacts with the controller to provide it the data for which to populate the model.
Here is a diagram.



Here is an example of the dataflow as a user posts a review.





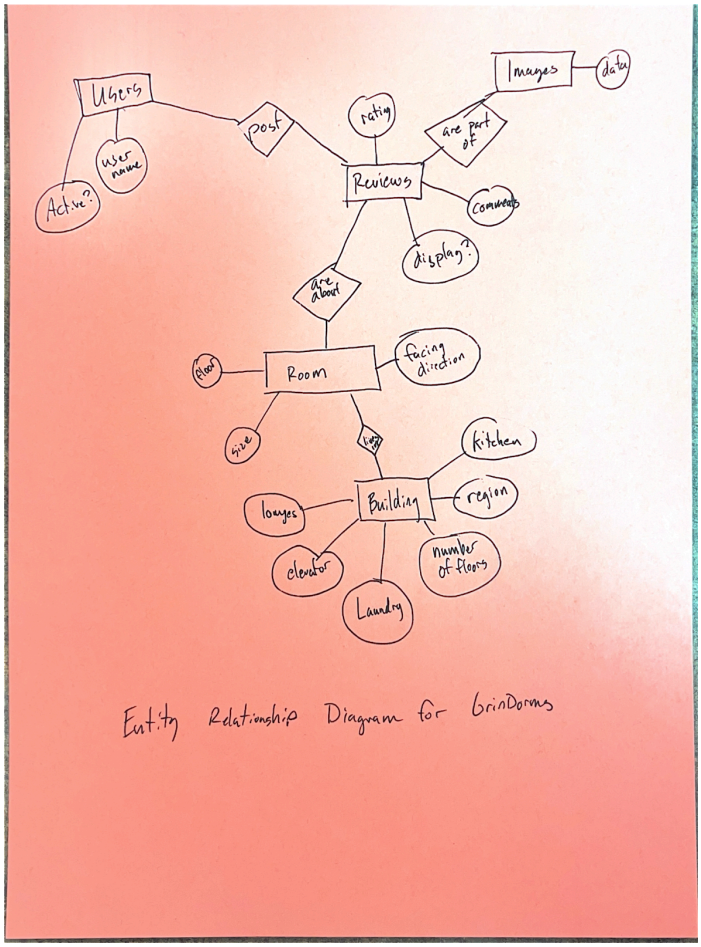
Our assumptions are that we are using Django, that Django will be able to integrate with a Postgres database, and that we will be able to publicly host our project on Reclaim Cloud.

Database Requirements

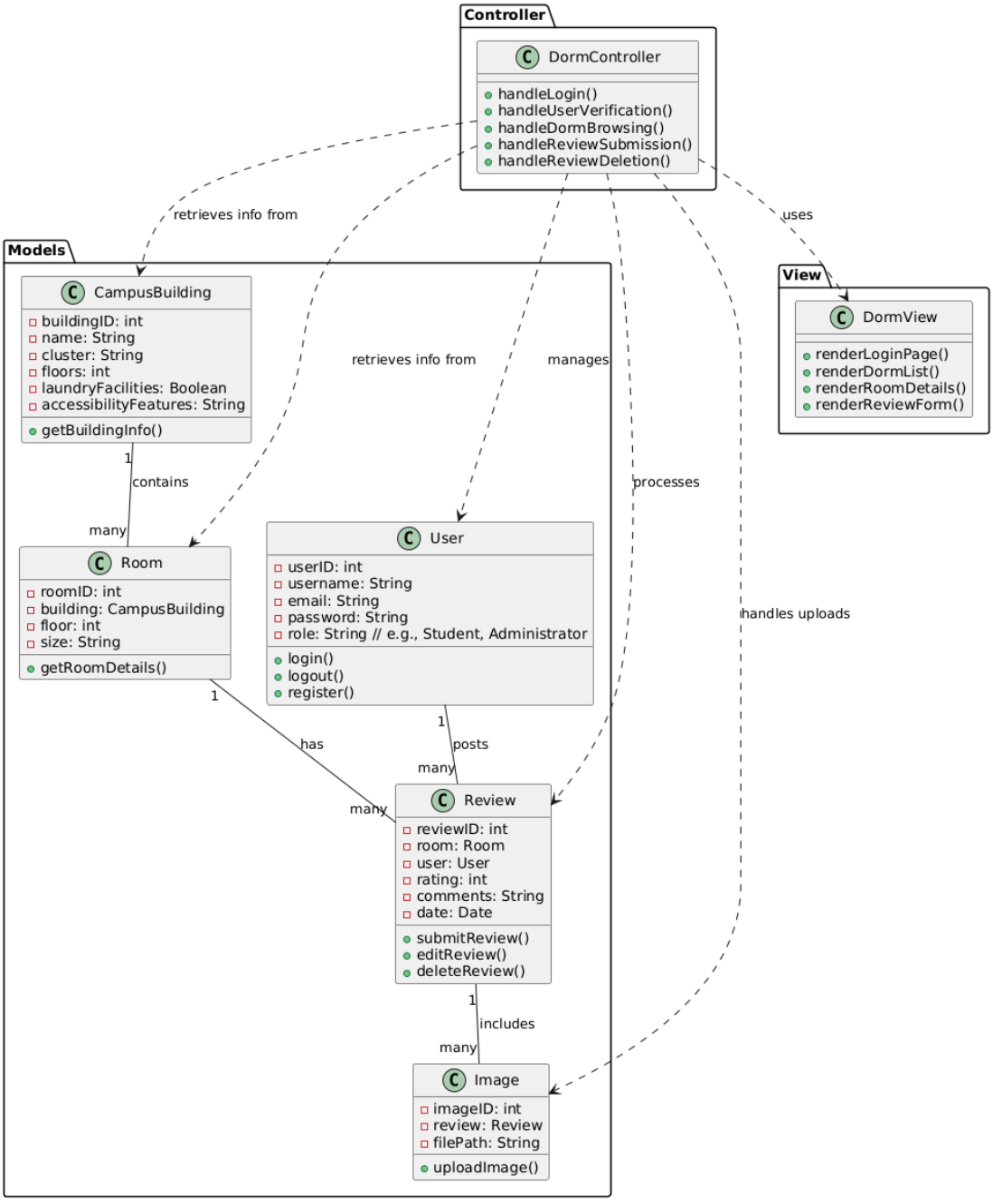
Data modeling: If your system stores data, describe in detail what data your system stores, and how. If it uses a database, give the first draft of your database schema. If not, describe how you are storing the data and its organization. To explain your data, you may find it helpful to draw an entity-relation diagram.

Our database will have 5 different tables. There will be a table of campus buildings which stores information relating to the number of floors, laundry facilities, accessibility, lounges, kitchens and campus location. There is also a table of rooms that stores a foreign key to the building each room is located in, plus fields for the room size, the floor it lives on, etc. There is a table for users which stores their username, password, and whether they are active or not. This is provided by Django. There is a table for reviews that stores all the relevant information provided in the review. The rating, comments, and also the reviews have a key linked to the specific room the review is associated with. Finally, there is a table for images that stores all the images provided by users, linked to the review that they are associated with.

Below is an entity diagram described by the paragraph above.



Software Design



Documentation Plan

We will release a user guide by April 9 detailing how users should expect to use the site and what functionality is included. Following this, as we finish our product, we will release an admin guide detailing the responsibilities entrusted to them and how to administer the site. This will be released soon after April 9, hopefully by April 23. There will also be a help panel associated with each page that will detail the function of the current page and have FAQs provided. This will be built into the site upon release.